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1/1 ページ

*Entgegenhaltung 1* Betr.: JP-Pat.-Ann. 2005-507707

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : PLASTIC KOGAKU KENKYUSHO:KK

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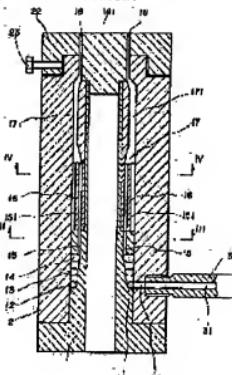
(72)Inventor : KIMURA YOSHIO

## (54) ANNULAR DIE FOR EXTRUSION MOLDING OF THERMOPLASTIC RESIN

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide an annular die for the extrusion molding of a thermoplastic resin capable of molding a tubular member high in strength even when a rubber elastomer is extruded.

**SOLUTION:** In an annular die for the extrusion molding of a thermoplastic resin consisting of inside and outside dies 1, 2 and constituted so that the upstream resin flow path allowed to communicate from a resin supply part is provided between the base end parts of both of the inside and outside dies 1, 2 and an annular extrusion flow path is provided between the terminals of the inside and outside dies, the upstream resin path flow 13 is branched into a plurality of branched flow paths 15 toward the downstream side at an almost equal interval in a peripheral direction and the respective branched flow paths 15 are gradually expanded in the peripheral direction toward the downstream direction and parts 151 overlapped in a radius direction through a part of the mutually adjacent branched flow paths and partition walls 16 are provided to a part of the branched flow paths 15 so as to be extended thereto and the branched flow paths 15, 151 are allowed to meet and communicate with the annular flow path 18 at the terminals thereof.



JP,11-156916,A [CLAIMS]

**Entgegenhaltung 1** Betr.: JP-Pat.-Anm. 2005-507707

1/1 ページ

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**CLAIMS**

## [Claim(s)]

[Claim 1]Consist of an inside die and an outside die and a resin passage of the upper stream opened for free passage from a resin supplying port is provided between base ends of an inside die and an outside die, In an annular die for thermoplastics extrusion molding with which an annular extrusion channel was established between ends of an inside die and an outside die, A resin passage of the upstream branches to two or more branching channels mostly toward the downstream in a hoop direction at regular intervals, Are gradually extended to a hoop direction as each branching channel goes to a downstream direction, and a portion which overlaps radially via a part and an inner partition wall of adjacent \*\*\*\*\* is installed in a part of each branching channel, An annular die for thermoplastics extrusion molding which carries out that the unification free passage is carried out to each branching channel and an extrusion channel annular at the end of a portion which overlaps radially with the feature.

[Claim 2]The annular die for thermoplastics extrusion molding according to claim 1, wherein an angle to a medial axis of the length of a hoop direction of a portion which overlaps radially is 10 degree - (360 degrees / the number of branching channels).

[Claim 3]The annular die for thermoplastics extrusion molding according to claim 1 or 2, wherein the number of exit ends of a branching channel which results downstream from the upper stream is the number of power of 2, respectively.

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Translation done.]

JP,11-156916,A [DESCRIPTION OF DRAWINGS]

**Entgegenhaltung 1** Beir.: JP-Pat.-Ann. 2005-507707

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**DESCRIPTION OF DRAWINGS**

[Brief Description of the Drawings]

[Drawing 1]The sectional view showing an example of the annular die for thermoplastics extrusion molding of this invention.

[Drawing 2]The development view of the branching channel of the annular die for thermoplastics extrusion molding of this invention shown in drawing 1.

[Drawing 3]The sectional view in the III-III line of drawing 1.

[Drawing 4]The sectional view in the IV-IV line of drawing 1.

[Drawing 5]The sectional view showing the important section of other examples of the annular die for thermoplastics extrusion molding of this invention.

[Drawing 6]The development view of the branching channel of other further different examples of the annular die for thermoplastics extrusion molding of this invention.

[Drawing 7]The development view of the branching channel of other further different examples of the annular die for thermoplastics extrusion molding of this invention.

[Drawing 8]The sectional view showing the important section of other further different examples of the annular die for thermoplastics extrusion molding of this invention.

[Drawing 9]The sectional view in the IX-IX line of drawing 8.

[Drawing 10]The explanatory view showing an annular die conventional spiral mandrel type.

[Drawing 11]The explanatory view of the tubular body at the time of carrying out extrusion molding of the usual thermoplastics using an annular die conventional spiral mandrel type.

[Drawing 12]The explanatory view of the tubular body at the time of extruding a rubber elastomer using an annular die conventional spiral mandrel type.

[Description of Notations]

1 Inside die

11 Input

12 Inflow way

13 The 1st branching channel

14 The 2nd branching channel

15 Branching channel

151 The portion which overlaps radially

16 Inner partition wall

17 Annular passage

171 A narrow portion

18 The annular passage of an exit

2 Outside die

21 Inflow way

3 Resin inhalant canal

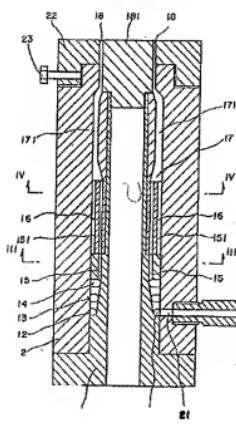
4 Annular part

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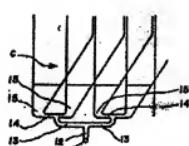
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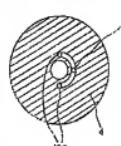
[图1]



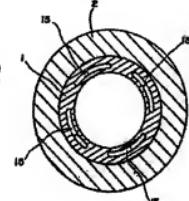
[图2]



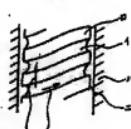
[图9]



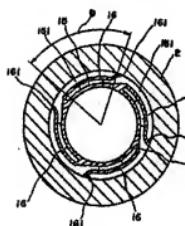
[图3]



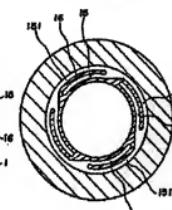
[图10]



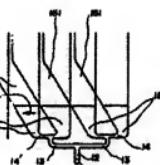
[图4]



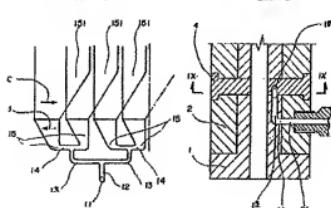
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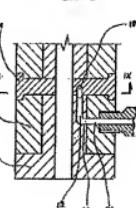
[图6]



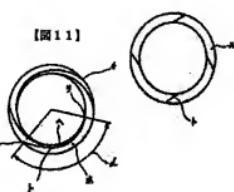
[图7]



[图8]



[图11]



[图12]